

Philosophy of Language and Mind: 1950-1990

Tyler Burge

The Philosophical Review, Vol. 101, No. 1, Philosophy in Review: Essays on Contemporary Philosophy (Jan., 1992), 3-51.

Stable URL:
http://links.jstor.org/sici?sici=0031-8108%28199201%29101%3A1%3C3%3APOLAM1%3E2.0.CO%3B2-O

The Philosophical Review is currently published by Cornell University.

The Philosophical Review, Vol. 101, No. 1 (January 1992)

Philosophy of Language and Mind: 1950–1990

Tyler Burge

The last forty years in philosophy of language and philosophy of mind have seen, I hazard to say, some of the most intense and intellectually powerful discussion in any academic field during the period.[1] Yet the achievements in these areas have not been widely appreciated by the general intellectual public. This is partly because they are abstract and difficult. But it is partly a reflection of the lamentably weak lines of communication between philosophy and the rest of culture, especially in America. In my view, this situation developed during the professionalization of philosophy in the positivist period. Indeed, positivism's harsh judgment of the cognitive value of most of nonscientific culture should probably be given much of the blame.

Logical positivism casts a long shadow. Its overthrow in the early 1950s is the central event at the outset of the period that I shall discuss. Elements from this movement motivated and colored much that followed. Philosophy's challenge has been to maintain the movement's clarity and respect for argument, while loosening its restrictions on method and subject matter.

Logical positivism aimed to make philosophy scientific—to end the succession of philosophical systems that seemed to promise no analogue of scientific progress. To support this aim, the movement presented an account of why philosophy had failed to be scientific

[1]What follows is a historical overview pitched to nonspecialists. I have concentrated on English-speaking philosophy, which in these areas has been dominantly North American since the 1960s. The scope of the article has, of course, forced me to omit many topics that are of great importance. I will mention a few of these: intensional contexts, quantifying in and *de re* attitudes, the concept of truth, the relation between theories of meaning and metaphysical issues like realism, the semantical and epistemic paradoxes, speech-act theory and other topics in pragmatics, the subject matter of linguistics, consciousness and issues about qualia, personal identity, action theory, the innateness of mental structures, knowledge of language, the nature of psychological explanation, the legacy of Wittgenstein. I think that in some loose sense, however, I have caught some of what would be widely counted "the mainstream" of philosophical discussion. I am grateful to Jay Atlas, Ned Block, Susan Carey, Warren Goldfarb, and the editors for good advice.

and what its proper scope and limits are. This account rested on a theory of meaning coupled with a theory of knowledge.

The theory of meaning was the most original proposal of the movement. It consisted of two main principles. One was that the meaning of a sentence is its method of verification or confirmation (*the verificationist principle*). The other was that statements of logic and mathematics, together with statements that spell out meaning relations, are *analytic* in the specific sense that they are *true purely in virtue of their meaning and provide no information about the world: they are vacuously or degenerately true*. It was typically claimed that analytic truth is truth in virtue of conventions or other activities whose products are not rationally legitimated.

The verificationist principle was supposed to explain why philosophy, particularly metaphysics, had failed. The idea was that since philosophy associates no method of verification with most of its claims, those claims are meaningless. To be meaningful and produce knowledge, philosophy was supposed to imitate science in associating its claims with methods of testing them for truth.

The logical positivists saw both principles about meaning as underwriting an empiricist theory of knowledge, a theory according to which all nonvacuous knowledge is justifiable only by reference to sense experience. Science was supposed successful only because it checks and justifies its claims by reference to sense experience. Logic and mathematics, the traditional sources of difficulty for empiricism, were counted useful but vacuous in that they are analytic. Thus, all cognitively meaningful, nonvacuous claims about the world were supposed to be justifiable only by methods of verification that lead ultimately to sense experience.

This empiricism varies but slightly from that of Hume. The attempt to explain the limits of philosophy by reference to scientific method is an adaptation of Kant's broadly similar attempt. What distinguished the movement most sharply from its philosophical predecessors was its radical theory of meaning, represented by the verificationist principle, and its dispassionate, communal approach to philosophical discussion practiced by its leading proponents—men like Carnap, Schlick, Neurath, Reichenbach, and Hempel. The theory of meaning gave philosophy a new focus and caught the attention of the intellectual public because of its radical implication that a lot that passed for serious intellectual discourse (outside philosophy as well as in it) was in fact "meaningless." The

intellectual power, seriousness, and openness of the movement's leaders obtained for the movement a number of talented interlocutors.

Problems with the verificationist principle dogged the movement almost from the beginning. There was a difficulty with self-application. It is hard to cite a method of verification that is associated with the principle itself; and in the absence of such a method, the principle is "cognitively meaningless" by its own account. Some proponents counted the principle analytic, vacuously true. But this claim was difficult to make credible because the principle seemed so much more contentious than other purportedly analytic claims. Moreover, to admit that one's philosophy was cognitively vacuous was not to pay it much of a compliment. Among positivists, Carnap maintained the most sophisticated position on the issue. He recommended as a practical proposal, to be judged by its theoretical fruits, a linguistic framework within which the principle counted as analytic. He regarded the principle as a proposal for clarifying the informal meaning of 'meaning'. Given its allegedly practical cast, this position was not persuasive to those not already convinced. Moreover, it encountered problems with the notions of linguistic framework, analyticity, and the practical-theoretical distinction, some of which I shall discuss.[2]

There was also a difficulty in stating what counts as an admissible method of confirmation. Various proposals about the structure of confirmation were found to be revivals of traditional philosophical pictures (such as phenomenalism) in disguise. The proposals lacked scientific status. More generally, most of the more precise formulations either included parts of metaphysics as meaningful or excluded parts of science as meaningless. This problem led to a number of reformulations of the verificationist principle. But frustration with this difficulty finally led Hempel in 1950 to agnosticism about the truth of any suitably powerful verificationist principle.[3]

---

[2]Rudolf Carnap, *The Logical Syntax of Language* (London: Routledge and Kegan Paul, 1937); "Empiricism, Semantics, and Ontology" (1950), reprinted in *Meaning and Necessity* (Chicago: Chicago University Press, 1964), appendix A.

[3]Carl Hempel, "Empiricist Criteria of Cognitive Significance: Problems and Changes" (1950), in *Aspects of Scientific Explanation* (New York: The Free Press, 1965).

Quine's frontal attacks on both primary principles of logical positivism in the early 1950s marked the true end of the movement. His criticism of the verificationist principle aimed at the fundamental issue. Quine claimed that methods of confirmation in science could not be associated with single sentences, as the principle required. He held that sentences can be confirmed or disconfirmed only in relation to other sentences, in the context of theories. This general claim earned the loose title "holism." On this view, a method of confirmation cannot be uniquely associated with any one sentence as its meaning.[4] Holism, understood in this general sense, came to be buttressed by many examples from the practice of science. It has held the field in empirical domains ever since.

Quine also challenged the idea that the notion of analyticity had any application. The attack spilled over into a campaign against a variety of different notions associated with the specific notion of analyticity that I characterized. Since Quine himself often failed to distinguish among these notions, the attack on the original notion has been neglected in the controversy over the broader campaign.

Quine's primary and strongest point was that the claim that some sentences are vacuously true has no explanatory or cognitive advantage. He maintained that there is no ground for claiming that the relevant sentences are vacuously true, with no dependence on the way the world is, as opposed to true because of obvious and ubiquitous (in traditional terms, "necessary") features of reality. Quine's strongest point is not that the notion of meaning is incoherent or requires some special explanation. It is that there is no good argument for characterizing the distinction between the supposed instances of analytic truths (including logical truths and truths of "meaning analysis") and instances of other truths in terms of vacuous truth and subject matter independence.[5]

---

[4]W. V. Quine, "Two Dogmas of Empiricism," *Philosophical Review* 60 (1951): 20–43; reprinted in Quine's *From a Logical Point of View* (New York: Harper, 1961); cf. also *Word and Object* (Cambridge: The MIT Press, 1960), chap. 1. Similar points were made by Hempel at about the same time. Cf. "Empiricist Criteria of Cognitive Significance," 112–13, 117. But Quine's work had greater impact, perhaps because of his colorful and forceful exposition and because he attacked the analytic-synthetic distinction as well.

[5]W. V. Quine, "Carnap on Logical Truth" (1954), in *The Ways of Paradox* (New York: Random House, 1966); cf. also "On Carnap's Views on Ontology" (1951) in the same collection.

Carnap defended the claim that logic is analytic by holding it to be a practical proposal that is itself analytic—to be judged by its fruits in explicating meanings.[6] This defense paralleled his defense of the verificationist principle against the objection concerning self-application. Quine held that Carnap's notion of a practical proposal could not be distinguished from that of a theoretical proposal. For theoretical proposals in science are judged "pragmatically," by their theoretical fruitfulness.

Quine also criticized other attempts to spell out the claim that logic is analytic, or vacuously true. As against the view that logic is true by convention, he pointed out that logic has an infinite number of theorems. One might imagine, for the sake of argument, that individual axioms were true by conventional stipulation. But deriving the consequences of these axioms requires that one already assume logic. The main principles of logic seem prior to any activity that might be regarded as a laying down of linguistic meaning.[7]

Many positivists sympathized with Frege's logicist program of defining mathematical terms in logical terms, and deriving mathematical theorems from logical axioms together with the definitions.[8] Unlike Frege, they saw the program as aiding the empiricist cause of counting mathematics vacuously true. Many problems already clouded this vision. But Quine added to them by indicating that the vacuity of definitions is at best a passing trait. He noted that when definitions are incorporated into theories, they become subject to theoretical criticism and revision, thus not vacuously true. This point was subsequently substantiated by consideration of numerous theoretical definitions in science and mathematics, which had turned out to be false or theoretically inadequate.[9]

---

[6]*The Philosophy of Rudolf Carnap*, ed. Paul Arthur Schilp (La Salle, Ill.: Open Court, 1963), 917ff.

[7]W. V. Quine, "Truth By Convention" (1936), in *The Ways of Paradox*. The point goes back to Lewis Carroll.

[8]Gottlob Frege, *The Foundations of Arithmetic* (1884), trans. J. L. Austin (Evanston, Ill.: Northwestern University Press, 1968); *The Basic Laws of Arithmetic* (1893–1903), ed. M. Furth (Berkeley: University of California Press, 1967). For an exposition of a positivist interpretation of the logicist program, see Carl Hempel, "On the Nature of Mathematical Truth" (1945), in *The Philosophy of Mathematics*, 2d. ed., ed. Paul Benacerraf and Hilary Putnam (Cambridge: Cambridge University Press, 1986).

[9]Cf. "Carnap and Logical Truth" and "Two Dogmas of Empiricism";

By considering the practice of linguistic interpretation, Carnap tried to provide an empirical basis for distinguishing between meaning postulates and theoretical postulates.[10] Carnap's proposals are historically important because they motivated Quine to initiate his project of producing a theory of "radical translation" (discussed below). But quite apart from their great oversimplifications and their reliance on shaky psychological assumptions, Carnap's proposals are, I think, weak in that they never come to grips with the problem of defending analyticity. Although they may provide a start toward *some* distinction between meaning explications and ordinary theoretical postulates, they give no *prima facie* ground for distinguishing between nonvacuous and vacuous truth, or between true principles that are rationally legitimated and those that are not rationally legitimated. So they give no support to empiricist epistemology—the original motivation for invoking analyticity.

There was something more general than empiricism at stake in the dispute over analyticity. The positivists hoped "first principles," the boundaries of rational discussion, could be established as vacuously true and not subject to philosophical questions about legitimation. First principles included logic, but also other principles about the boundaries of rational discussion, such as the verificationist principle or the claim that certain truths are vacuously true and not subject to rational legitimation. If these principles were themselves analytic, they could be exempted from the traditional metaphysical and epistemological questions. Carnap maintained a principle of tolerance that allowed there to be different "first principles," which could be "adopted" for pragmatic reasons. But it was fundamental to his view, as well as the views of other less liberal positivists, that neither establishing nor changing a framework of such principles is subject to rational ("theoretical") considerations. Such changes were supposed to be "prompted" or "chosen" or were "merely practically" motivated.

Quine's attack on analyticity calls this distinction into question. Indeed, what I regard as his fundamental criticisms of analyticity

---

Hilary Putnam, "The Analytic and the Synthetic" (1962), in *Philosophical Papers*, vol. 2 (Cambridge: Cambridge University Press, 1985).

[10]Cf. "Meaning and Synonymy in Natural Languages," *Philosophical Studies* 6 (1955): 33–47, reprinted in *Meaning and Necessity*, appendix D.

have never been satisfactorily answered: No clear reasonable support has been devised for a distinction between truths that depend for their truth on their meaning alone and truths that depend for their truth on their meaning together with (perhaps necessary) features of their subject matter. Similarly, neither Carnap nor anyone else has succeeded in distinguishing between nonrational grounds for adopting "first principles" and grounds that traditionalists (as well as Quine) might count as rational but obvious (or even rational but disputable). Quine thought that the grounds were covertly empirical. Traditionalists would think that the grounds were rational but *a priori* and relevant to deep structural aspects of the world. In any case, the relevant notion of analyticity has lost its central place in philosophical discussion. Quine's attack, somewhat against his own proclivities, reopened a path to traditional metaphysical and epistemological questions about "first principles"—a path to the traditional fundamental questions of philosophy. The positivists did not succeed in placing any questions—least of all those about their own two first principles—off limits from rational inquiry.

Quine argued against another notion called "analyticity," with no indication that it was distinct from the first. In this second sense, a statement is "analytic" (henceforth "*analytic-2*") if it is derivable from logic together with definitions.[11] Analyticity-2 is by itself clearly of no use to empiricism or to attempts to end traditional philosophy, for it is completely neutral on the metaphysical and

---

[11]W. V. Quine, "Two Dogmas of Empiricism." Quine says little about analyticity as opposed to analyticity-2 in "Two Dogmas." Since this article has unfortunately received vastly more attention than "Carnap on Logical Truth," and since much of the attack on analyticity-2 in "Two Dogmas," taken by itself, is not very persuasive, many philosophers are even now baffled about why Quine's criticism of "analyticity" is important. I might note that there is a third conception of "analyticity": roughly a truth is "analytic" (in this note, "*analytic-3*") if it states a containment relation between concepts or meanings. This conception is not, I think, equivalent to either of the other two. It differs from analyticity-2 in that it need not (should not) count at least some logical truths as "analytic-3." It differs from analyticity in that it need not (should not) count analytic-3 truths vacuous, or independent for their truth of a subject matter. Locke thought of analyticity-3 as equivalent to analyticity. Leibniz held analyticity-2 and analyticity-3 to be equivalent. Kant seems to have thought of all three conceptions as equivalent. In my view, analyticity-3 has not played an important role in the period I am discussing.

epistemological status of logical truth and definitions. The two notions were run together by many philosophers because of an assumption, common since Kant, that logic and definitions are vacuously true. Frege and Russell (not to speak of Aristotle and Leibniz) preceded Quine in rejecting this assumption.[12]

Quine ran together the two notions of analyticity for a different reason. He thought that both are useless. His complaint against analyticity-2 was that it has no clear explanatory value, and that all attempts to explicate the relevant notion of definition utilize notions that are equally useless. The key notion in explaining definitions was synonymy or sameness of meaning. Expanding on points about definitions mentioned earlier, Quine maintained that there is no explanatorily useful distinction between ordinary theoretical postulates and statements that give the meaning of terms, or between attributions of changes of meaning and attributions of changes of belief. Thus Quine proposed a general skepticism about the use of the notion of meaning itself.

The criticisms of analyticity-2 were more widely disputed than those of analyticity. I think them far less successful. But because of Quine's skepticism about the very notion of meaning, the issue over whether a notion of meaning could be clarified replaced the question of whether analyticity could be defended as the focus of discussion. Partly because clarifying the notions of meaning and logic

[12]Frege saw logic as the discipline that applied to all subject matters, and held in particular that it was committed to the existence of an infinity of extensions (including numbers) and functions (*Foundations of Arithmetic*—e.g., sec. 14 and *passim*—or "Thoughts," in *Collected Papers* [Oxford: Basil Blackwell, 1984].) Russell's logicism is substantially similar to Frege's in holding logic to be about abstract entities that are structures in all domains of the world: "Logic . . . is concerned with the real world just as truly as zoology though with its more abstract and general features" (*Introduction to Mathematical Philosophy* [1919; reprint, New York: Simon and Schuster, 1971], chap. 16). Aristotle thought that definitions stated essences, and that logic uncovered fundamental structures in the world. Cf. *Posterior Analytics* I 1–4; II 10, 19; *Metaphysics* IV 4. Leibniz thought that all knowledge of the world could be derived, at least by God, from logical principles by analysis of concepts. Cf., for example, "Primary Truths"; "Discourse on Metaphysics," sec. 8; and "Monadology," sec. 31; all in *Philosophical Essays*, trans. Ariew and Garber (Indianapolis: Hackett, 1989). More broadly, the idea that, by understanding conceptual relations, one could gain deep and fundamental knowledge of the world is a characteristic tenet of rationalism.

sufficed for defending analyticity-2, this latter notion tended to obscure analyticity in the debate.

Many philosophers maintained that Quine's demands for a clarifying explication of the distinction were misplaced. They held that a distinction could be grounded in a practice rather than a principle—that the existence of a practice of explaining meaning, or giving dictionary definitions, gave credence to there being some distinction between meaning explication, or synonymy, and ordinary theoretical postulates.[13] Defenders of analyticity-2 commonly held that definitions or meaning explications could not turn out false. In this, I believe they were mistaken. But in their claims that there is a tenable distinction between explications of meaning and (other) theoretical postulates, defenders of analyticity-2 seem to me to be on stronger ground. Quine held, in effect, that a practice without a principle could not be justified. Moreover, he doubted that the distinctions that his opponents were pointing to need be explained by utilizing any notion of meaning.[14]

This dispute reflected a deeper division over ordinary practice. The division affected both linguistic and philosophical method. The positivist movement, influenced by Frege through Russell, Carnap, and Wittgenstein, had propagated the view that the study of linguistic meaning was the proper starting point for philosophy.[15] Language and meaning were supposed to elicit initial agreement better than other traditional starting points, such as the nature of concepts, or first metaphysical and epistemological principles. By the 1950s the linguistic turn had taken hold. It was filtered through two very different traditions.

One of these traditions derived from Frege's attempt to find a perfect language to express the structure of mathematics. This approach was taken up by the positivists, Russell, Wittgenstein, and eventually Quine. Frege's concern with mathematics was broadened by others to include all of science. The underlying idea was

[13]H. P. Grice and P. F. Strawson, "In Defense of a Dogma," *Philosophical Review* 65 (1956): 141–58; Hilary Putnam, "The Analytic and the Synthetic."

[14]Cf., for example, W. V. Quine, *Word and Object*, 67.

[15]For a remarkable collection of methodologically oriented articles from this period, see Richard Rorty, ed., *The Linguistic Turn* (Chicago: University of Chicago Press, 1967).

that though language was a reasonable focus for philosophy, it had to be understood in the light of reforms needed for scientific purposes.

The other tradition derived from G. E. Moore's insistence on the primacy of ordinary judgments and practices in dealing with philosophical problems. In Moore's ethical and epistemological writings, examples were given more weight than theory; and ordinary judgments were accorded priority over philosophical principles. Moore's emphases were taken up and applied to linguistic practice in Wittgenstein's highly original later work. In the late 1940s and the 1950s, before and after the publication of *Philosophical Investigations* (1953), concentration on the details and nuances of everyday linguistic practice became the watchword of "ordinary-language philosophy."[16] Proponents of this approach tended to assume that the wisdom of centuries was embedded in ordinary practices. Philosophical problems were seen to be either solvable or dissolvable by reference to ordinary practice.

Thus, both traditions took philosophy of language as the starting point for doing philosophy. In the 1950s both tended to be contemptuous of philosophy's past. But the tradition deriving from Frege took science, logic, or mathematics as the source of inspiration for linguistic and philosophical investigation, whereas the tradition deriving from Moore took ordinary practice as the touchstone for linguistic and philosophical judgment. The former tradition distrusted intuition and championed theory. The latter distrusted principles and championed examples.[17]

As approaches to understanding language and as starting points for doing philosophy, each tradition had its weaknesses. In both

[16]Ludwig Wittgenstein, *Philosophical Investigations*, trans. Anscombe (New York: Macmillan, 1953) and J. L. Austin, "Other Minds" (1946), in *Philosophical Papers* (Oxford: Oxford University Press/Clarendon, 1961), are perhaps the outstanding examples of attempts to apply observations about ordinary linguistic use to traditional philosophical problems.

[17]The most sophisticated and fascinating example of this dispute occurs in a famous exchange between Carnap and Strawson. Cf. P. F. Strawson, "Carnap's View on Constructed Systems versus Natural Languages in Analytic Philosophy" and Carnap's "P. F. Strawson on Linguistic Naturalism," both in *The Philosophy of Rudolf Carnap*. Cf., also, Stanley Cavell, "Must We Mean What We Say?" (1958), in *Must We Mean What We Say?* (Cambridge: Cambridge University Press, 1976).

cases, impatience with standard philosophical problems led to attempts at quick fixes that in retrospect seem shallow.

The ordinary-language tradition produced some brilliant linguistic observation. It provided new tools for dealing with philosophical problems, and a sensitivity to linguistic distinctions. But as philosophical method, it faced numerous difficulties, never adequately dealt with, in deriving philosophical conclusions from linguistic examples.[18]

As a way of understanding language, the tradition tended to be anecdotal, and its legacy of specific contributions is rather thin. Only a few works made durable contributions to linguistic understanding. Austin produced a taxonomy of speech acts (acts like asserting, promising, commanding) that embedded them in a larger view of human action. The taxonomy became a starting point for much work on pragmatics. Some of Strawson's early work on the speech act of referring and on presupposition bore fruit.[19] The tradition's primary contribution to the philosophy of language, its focus on details of usage, yielded better results when it later allied itself with systematic theory.

Influenced by the spectacular development of logic since Frege, the logical-constructionist tradition aimed at clarifying philosophical problems by formulating them in a precise logical system. Where ordinary notions were indefinite or vague, they were to be replaced by more precise analogues. The pressure to state precise rules of inference uncovered a vast array of distinctions. Logic itself may be regarded as a clarification of ordinary logical concepts. Logical constructionism yielded some notable early successes

[18]The discussion of the paradigm-case argument marks, I think, the downfall of the method. Cf. J. W. N. Watkins, "Farewell to the Paradigm Case Argument," *Analysis* 18 (1957): 25–33; Keith S. Donnellan, "The Paradigm-Case Argument," in *The Encyclopedia of Philosophy,* ed. Edwards (New York: The Macmillan Company and The Free Press, 1967).

[19]J. L. Austin, *How to Do Things with Words* (New York: Oxford University Press, 1965); P. F. Strawson, "On Referring," *Mind* 59 (1950): 320–44; P. F. Strawson, *Introduction to Logical Theory* (London: Methuen, 1952). For more recent work in this tradition, see John Searle, "A Taxonomy of Illocutionary Acts" (1975) and "Indirect Speech Acts" (1975), reprinted in his *Expression and Meaning* (Cambridge: Cambridge University Press, 1979); Jay Atlas, *Philosophy Without Ambiguity* (Oxford: Oxford University Press/Clarendon, 1989).

in producing new logics—particularly in the analysis of necessity and of temporal notions.[20]

As a philosophical method, however, it was limited by a tendency to assume that philosophical problems would disappear if they were replaced by logical problems or problems in constructing a scientific language. Many philosophical problems arise in non-scientific discourse and cannot be solved by laying down rules for the use of notions in a science. Even most of those problems closely related to the sciences are not solved merely by clarifying logical relations.

As an approach to understanding language, the tradition's method of replacement was calculated to ignore certain aspects of language use as detrimental to scientific purposes. Thus, vagueness, ambiguity, indexicality, singular reference, implicature, intensionality, and so on, were ignored (by one writer or another) because of preconceptions about well-behaved logical systems or about the needs of science.

Frege's influence on the logical-constructionist tradition has already been mentioned. One of the most important developments in the 1950s was the upsurge of interest in Frege's own work, particularly his essays in the philosophy of language. Frege's name had been kept alive by Russell, Carnap, and Wittgenstein in the early part of the century, and by Church, Carnap, and Quine in the 1940s and early 1950s. But what provoked widespread consideration of his work was the publication in 1952 of *Translations of the Philosophical Writings of Gottlob Frege*, edited and translated by Geach and Black. Belatedly, during the 1950s, Frege came to be widely recognized as the father of twentieth-century philosophy.[21]

The philosophy of language became a vibrant, semi-autonomous discipline in the 1960s and early 1970s. In fact, it was considered by

---

[20]Rudolf Carnap, "Modalities and Quantification," *Journal of Symbolic Logic* 11 (1946): 33–64; Ruth Barcan Marcus, "A Functional Calculus of First-Order Based on Strict Implication," *Journal of Symbolic Logic* 11 (1946):1–16; A. N. Prior, *Time and Modality* (Oxford: Oxford University Press, 1957); Saul Kripke, "Semantical Analysis of Modal Logic I," *Zeitschrift für Mathematische Logik* 9 (1963): 67–96; Alonzo Church, "A Formulation of the Logic of Sense and Denotation," in *Essays in Honor of Henry Sheffer*, ed. Henle (New York: 1951).

[21]Gottlob Frege, *Translations of the Philosophical Writings of Gottlob Frege*, ed. Geach and Black (Oxford: Basil Blackwell, 1952).

many to be the new "first philosophy."[22] The subject came of age, in my judgment, out of four primary sources. One was Frege's great influence and example. Another was the combination of the strong points of ordinary-language philosophy and logical constructionism: logical theory was brought to bear on ordinary language, with the aim of understanding it rather than reforming it. A third was the need to interpret the failure of the positivists' verificationist principle. And a fourth was a revival of traditional issues about singular reference. These sources fed discussion of three main problem areas: issues associated with logical form, issues associated with meaning, and issues associated with reference.

Frege's work was seminal in the discussion of all three problem areas. Each of the remaining three sources was primary for one of the three problem areas. I shall briefly mention some of Frege's contributions to the philosophy of language. Then I shall say something about the other sources of stimulation.

Frege made the first deep advance on the logic of Aristotle when in 1879 he stated the syntax and semantics for propositional calculus and first- and second-order quantificational logic. This work laid the groundwork for one of the great intellectual developments of the century—that of mathematical logic. This development gave philosophy a range of new problems and a new framework for discussing old ones. Influenced by Frege's work, as filtered through Russell and Wittgenstein, the development of formal semantics by Gödel, Tarski, Church, Carnap, and others in the 1930s and 1940s became the cornerstone for attempts in the 1960s and 1970s to provide an account of the truth conditions, logical form, and compositional structure of natural languages. Frege pioneered a method of finding logical form in natural languages by providing structures to account for actual inferences. His semantical explications of various linguistic constructions became both examples of how to theorize about language and contenders among competing accounts.

Frege also gave an argument for distinguishing between two semantical notions—sense and reference. The argument is so profound, despite its surface simplicity, that it has become a reference

[22]For a fine statement of this view, see Michael Dummett, "Frege," in *The Encyclopedia of Philosophy*.

point for philosophical discussion of language and mind. He observed that a statement that Hesperus is Phosphorus has a different cognitive value from a statement that Hesperus is Hesperus. The one is potentially informative where the other is not. Since the referents of the component expressions of the two statements are the same, he located the difference in a difference in the sense, or cognitive value, expressed by the names 'Hesperus' and 'Phosphorus'. Theoretical development and explication of the notions of reference and sense became fundamental problems for the philosophy of language.[23]

A second source of the flowering of the philosophy of language was a cross-pollination of the interests of ordinary-language philosophy with the methods of logical constructionism. Strawson and Quine provided a start at unifying these traditions. Trained in an environment that took ordinary language seriously, Strawson did significant work in the 1950s and early 1960s on referring, truth value gaps, and presupposition. He attempted to broaden the scope of logic to deal with insights derived from the ordinary-language tradition.[24]

Quine continued the logical-constructionist tradition. He aimed at providing a language adequate for the purposes of science. In *Word and Object*, a work of enormous influence, Quine argued that science could be formalized in first-order quantificational logic (without constant singular terms) together with set theory.[25] In carrying out this argument, Quine discussed a wide variety of linguistic constructions and showed a remarkable sensitivity to inferential patterns associated with them. Even where he ended by dismissing a possible account as useless to science, he frequently made it attractive to others whose purposes were less reformist.

Quine's *Word and Object* also influenced philosophical method. His ontological preoccupations indicated to many how philosophy of language could provide a framework for discussing traditional

[23]The best systematic discussion of almost all of Frege's work in philosophy of language is Michael Dummett, *Frege: Philosophy of Language* (London: Duckworth, 1973) and *The Interpretation of Frege's Philosophy* (Cambridge: Harvard University Press, 1981).

[24]P. F. Strawson, *Logico-Linguistic Papers* (Bungay, Suffolk: Methuen & Co., 1971).

[25]See especially chaps. 3–6.

issues in metaphysics. Quine had advocated the view that a theory was committed to the existence of some sort of entity just in case entities of that sort had to be regarded as values of bound variables in irreducibly basic assertions of the theory.[26] In *Word and Object,* Quine (intentionally) blurred the distinction between language and theory. He then made natural assumptions about what sentences were true, considered various ways of paraphrasing or reducing those sentences into others with more perspicuous logical forms, and finally used the logical forms as bases for discussing pros and cons of admitting the existence of various sorts of entities—properties, stuffs, events, propositions, sets, numbers, mental states, sensations, physical objects, and so on. Quine advocated a broadly materialist position that was tempered by a reluctant platonism about sets. Quine's materialism was not new. But his defense of it in the context of a systematic investigation of language and logical form lent it new interest. Partly because of *Word and Object,* ontological issues became the dominant preoccupation of metaphysics, including the philosophy of mind, in the two decades that followed.

The approach to language through a study of logical form, illustrated in Frege's and Quine's work, was taken up and made prominent by Davidson. Davidson relinquished Quine's aim of reforming language and proposed a particular formal framework—that of giving a finitely axiomatized Tarskian truth theory—for displaying the logical form and "meaning" of natural language sentences. The question of in what sense Davidson's truth theories illuminate meaning is a complex and controversial one. But the contributions of his approach (and more generally of approaches that utilize classical logic) to studies of logical form are, I think, substantial and lasting.[27] Other philosophers proposed various

[26]W. V. Quine, "On What There Is," *Review of Metaphysics* 2 (1948): 21–38, reprinted in *From a Logical Point of View.*

[27]Donald Davidson, *Inquiries into Truth and Interpretation* (Oxford: Oxford University Press/Clarendon, 1984), especially "Truth and Meaning," "Theories of Meaning and Learnable Languages," "Quotation," "On Saying That"; *Essays on Actions and Events* (Oxford University Press/Clarendon, 1980), especially "The Logical Form of Action Sentences"; Tyler Burge, "Reference and Proper Names," *Journal of Philosophy* 70 (1973): 425–39; "Truth and Singular Terms," *Noûs* 8 (1974): 309–25; James Higginbotham, "The Logical Form of Perceptual Reports," *Journal of Philosophy* 80 (1983): 100–27; W. V. Quine, "Quantifiers and Propositional

types of intensional logic in the analysis of logical form.[28] Some of this work on logical form was conducted as applied logic. Some of it was directed to clarifying traditional philosophical investigations. Either way, much of it exemplifies high standards of creativity and argument.

The rise of generative linguistics coincided with the flowering of the philosophy of language.[29] In retrospect it is striking how little the two disciplines influenced one another in the 1960s. There were some significant exchanges about the sense in which one knows a language, about innate ideas, and about the proper subject matter of linguistics. There is no question that linguists were influenced by the methods of logic, and that philosophers were influenced by the notion of a level of language—then called "deep structure"—that is not immediately evident to ordinary speakers. But Chomsky's early emphasis on the relative purity of syntax matched poorly with philosophers' preoccupation with semantic and pragmatic issues. As linguistics took a more systematic interest in semantics and pragmatics in the early to mid 1970s (largely in response to philosophy), however, the two subjects began to come together. Much of the earlier work by philosophers on logical form

Attitudes" (1953), in *Ways of Paradox;* David Kaplan, "Quantifying In," in *Words and Objections: Essays on the Work of W. V. Quine,* ed. Davidson and Hintikka (Dordrecht, The Netherlands: Reidel, 1969); Scott Soames, "Lost Innocence," *Linguistics and Philosophy* 8 (1985): 59–71.

[28]Robert Stalnaker, "A Theory of Conditionals," in *Studies in Logical Theory, American Philosophical Quarterly* monograph series no. 2, ed. Rescher (Oxford: Basil Blackwell, 1968); Bas van Fraassen, "Presuppositions, Supervaluations, and Free Logic," in *The Logical Way of Doing Things,* ed. Lambert (New Haven: Yale University Press, 1969); David Lewis, "General Semantics" (1970), in his *Philosophical Papers,* vol. 1 (Oxford: Oxford University Press, 1983); David Lewis, *Counterfactuals* (Oxford: Basil Blackwell, 1973); Alonzo Church, "Outline of a Revised Formulation of the Logic of Sense and Denotation, Part I," *Noûs* 7 (1973): 24–33, and "Outline of a Revised Formulation of the Logic of Sense and Denotation, Part II," *Noûs* 8 (1973): 135–56; Richard Montague, *Formal Philosophy,* ed. Thomason (New Haven: Yale University Press, 1974); Kit Fine, "Vagueness, Truth, and Logic," *Synthese* 30 (1975): 265–300; David Kaplan, "On the Logic of Demonstratives," in *Contemporary Perspectives in the Philosophy of Language,* ed. French et al. (Minneapolis: University of Minnesota Press, 1979); Jon Barwise and John Perry, *Situations and Attitudes* (Cambridge: The MIT Press, 1983).

[29]Noam Chomsky, *Syntactic Structures* (The Hague: Mouton & Co., 1957); *Aspects of the Theory of Syntax* (Cambridge: The MIT Press, 1965).

has since been assimilated and modified within linguistics. This development surely counts as one of the successes of philosophy, in its traditional role as midwife to the sciences.

A third source of stimulation for the philosophy of language was the need to assimilate the failure of the verificationist principle. This source led to intense discussion of the form and prospects of a "theory of meaning." The discussion is so complex that glossing it without being misleading is impossible in a paper such as this one. I shall just mention a few strands of the discussion.

I noted that Quine criticized the verificationist principle by claiming that methods of confirmation cannot be associated with individual sentences. Roughly speaking, Quine accepted the positivist assumption that meaning is, if anything, method of confirmation. But in view of the holistic nature of confirmation—the inability to associate confirmation with particular, definite linguistic sentential units—and the seeming impossibility of giving a general account of how disconfirmatory experiences lead one to revise theory, he concluded that there could be no theory of meaning. Indeed, he thought that the very notion of meaning had no place in a true account of the world. Even many who doubted Quine's radical skepticism about the cognitive value of the notion of meaning found this holism about meaning persuasive, and a source of doubt about a general theory of meaning. Some philosophers, like Dummett, accepted the verificationism and sought to limit the holism to scientific theory. He held that meaning in ordinary, nonscientific discourse was dependent on more atomistic criteria for applying terms. Others, like Putnam, rejected the verificationism but accepted a version of holism because of the variety of considerations that enter into determining constancy of meaning through changes of belief. Still others thought that the holism was restricted by considerations from the theory of reference, which I will discuss below.

Quine extended his criticism of the notion of meaning into arguments for the indeterminacy of translation.[30] He held that in any case in which one translates a natural language, there will be many equally ideal overall translations of the language which are so dif-

[30]W. V. Quine, *Word and Object*, chaps. 1 and 2; *Ontological Relativity* (New York: Columbia University Press, 1969).

ferent that one translates a given sentence S into a true sentence while another translates S into a false sentence. Quine provided two sorts of argument for this position. One began with the claim that physical theory is underdetermined by all possible evidential considerations—so that two equally good but incompatible physical theories could be ideally but equally well justified. He then attempted to show that translation would be indeterminate even when one of these physical theories was fixed. Quine concluded that since physical theory is the proper standard for objective reality, translation does not concern anything definite that is objectively real. Quine's other argument took up Carnap's attempt to show that attributions of meaning (and analyticity) have an empirical basis. He provided a detailed theory of the method of translation. In this theory he attempted to show that our evidence for translation is too sparse even to underwrite determinate translations for terms that are ostensibly about ordinary macrophysical objects, like 'rabbit'.

Quine's thesis about translation was of profound philosophical value in that it opened a new area of philosophical discussion. His second argument stimulated discussion of the evidence and methods for interpreting such linguistically basic phenomena as assent, the logical connectives, observation terms. But his conclusion has not found wide support. The evidence Quine allows for translation in the second argument has been widely thought to be unduly restrictive. And the claim of the first argument (which informs the second as well) that the relevant sort of indeterminacy of translation relative to physical theory—i.e., physics, chemistry, biology, behavioral psychology, but not cognitive psychology or linguistics—would be damning to the cognitive status of translation has seemed to many to be unconvincing.[31]

Davidson's proposal that a Tarskian theory of truth provide the form for a theory of meaning provoked intense debate in North America and England.[32] As I have mentioned, the most stable

[31]Noam Chomsky, "Quine's Empirical Assumptions," in *Words and Objections*.

[32]Donald Davidson, "Truth and Meaning," *Synthese* 17 (1967): 304–23, reprinted in *Inquiries into Truth and Interpretation*. Cf., also, John McDowell, "Truth Conditions, Bivalence, and Verificationism," in *Truth and Meaning*,

result of this proposal was the work on logical form that it occasioned. The idea that a theory of truth simply is a theory of meaning has been widely disputed. Tarski's theory depends on a translation from the language for which the theory of truth is given to the language in which the theory is given. Many thought that unless one provided a theory of this translation, one would not have provided a *theory* of meaning. Davidson made some plausible suggestions for liberalizing Quine's strictures on translation. But the main theoretical upshot of his proposal was the idea that meanings are truth conditions—requirements whose fulfillment would constitute the truth of a sentence or proposition. Such truth conditions were to be systematically and informatively displayed in a theory of truth. Even though his idea captures relatively little of what many philosophers wanted in a theory of meaning, it does develop one major strand, initiated by Frege, in the notion of meaning—the idea that meanings, in one sense, are truth conditions. And it provided a systematic way of displaying deep inferential relations among truth conditions. Davidson held that this was as much system as one could hope for in a "theory" of meaning.

Influenced by mathematical intuitionism and by Wittgenstein, Dummett criticized the view that meaning should be understood in terms of truth conditions. He took proof rather than truth as a paradigm of linguistic "use," which he considered the basic notion in understanding meaning. He claimed that meaning could not "transcend" the conditions under which linguistic understanding could be put to use and manifested. Sentences outside of science were associated with criteria of application, useful in communication.[33] Dummett used these ideas in discussing a wide variety of profound metaphysical issues, which are outside the scope of this essay. Dummett's approach to meaning, though rich and deeply provocative, has not been widely accepted, partly because of its

---

ed. Evans and McDowell (Oxford: Oxford University Press/Clarendon, 1976).

[33]Michael Dummett, "The Philosophical Basis of Intuitionistic Logic" (1973), in *Truth and Other Enigmas* (Cambridge: Harvard University Press, 1978); "What is a Theory of Meaning?" in *Mind and Language*, ed. Guttenplan (Oxford: Oxford University Press/Clarendon, 1975); "What is a Theory of Meaning? (II)," in *Truth and Meaning*.

"antirealist" metaphysical associations, partly because it has been seen by many as a recrudescence of verificationism. Understanding relations between confirmation, or use, and truth conditions remains, however, a complex and fundamental matter.

Concerned more with what makes expressions meaningful than with the structure of a language, Grice attempted to analyze linguistic meaning in terms of a special sort of communicative intention. He claimed that linguistic meaning is to be understood in terms of what a person means by an utterance. And this latter sort of meaning is to be understood in terms of the person's intending the utterance to produce some effect in an audience by means of the recognition of this intention. The linguistic meaning of the utterance is roughly the content of the intention.[34] Thus, certain mental states were taken to be analytically basic to understanding language. Mental states do appear to predate language. But it is difficult to see how some of our more sophisticated thoughts would be possible without language, or independent of language for their individuation. This issue about the relation between mind and language is extremely complex, and in need of further exploration.

Grice contributed another idea to the understanding of meaning. He pointed out that it is not always easy to distinguish between the linguistic meaning of an utterance and various contextual suggestions that might be associated with the meaning of the utterance—what Grice called "conversational implicatures." Grice produced an impressive theory of implicature that has been developed by linguists and philosophers.[35]

The fourth source of stimulation to the philosophy of language was a major shift in the theory of reference. Frege had made some remarks that suggested that the reference of a proper name is fixed by definite descriptions that a speaker associates with the

[34]Paul Grice, "Meaning," *Philosophical Review* 66 (1957): 377–88; "Utterer's Meaning, Sentence-Meaning, and Word-Meaning," *Foundations of Language* 4 (1968): 225–42; "Utterer's Meaning and Intentions," *Philosophical Review* 78 (1969): 147–77; all reprinted in *Studies in the Way of Words* (Cambridge: Harvard University Press, 1989). Cf. also Stephen Schiffer, *Meaning* (Oxford: Oxford University Press/Clarendon, 1972).

[35]Paul Grice, *Studies in the Way of Words*, part 1, given as lectures in 1967, but influential, through his teaching, on Strawson's work as far back as the early 1950s.

name. Thus the name 'Aristotle' would have as its referent whatever satisfied a definite description like 'the pupil of Plato and teacher of Alexander the Great'. (Frege did not try to eliminate names from the descriptions.) Russell purified and generalized this sort of view. He claimed that reference could rest either on acquaintance—an immediate, infallible, complete knowledge of an object—or on description. Russell came to think that acquaintance was associated only with the expressions 'I', 'this' (as applied to a sense datum), and perhaps 'now'. All other instances of apparent singular reference, including reference with proper names and most demonstrative expressions, were based on description.[36]

This view of reference was questioned by Wittgenstein and in subsequent work by Searle and Strawson.[37] Searle and Strawson suggested that the reference of proper names was fixed by a cluster of descriptions associated with the name by a community of speakers. The effect of this suggestion was twofold. It loosened the relation between the reference of names and any one associated definite description. And it portrayed reference as dependent on more than descriptions in the mental repertoire of the speaker. Reference depended partly on the speaker's relations to others in the community.

These suggestions were radicalized in such a way as to produce a completely different picture of reference. In 1966 Donnellan pointed out that there is a use even of definite descriptions in which their meaning—the conditions laid down by the definite descriptions—does not fix the referent (or at any rate, *a* referent relevant to understanding the speaker). For example, a person can use the definite description 'the man drinking the martini' to refer to a woman across the room who is sipping a soft drink.[38] Here the

[36]Cf. Gottlob Frege, "Thoughts," in *Collected Papers on Mathematics, Logic, and Philosophy* (Oxford: Basil Blackwell, 1984); Bertrand Russell, "The Philosophy of Logical Atomism," in *Logic and Knowledge*, ed. Marsh (London: George Allen and Unwin, 1956).

[37]Ludwig Wittgenstein, *Philosophical Investigations*, secs. 79, 87; John Searle, "Proper Names," *Mind* 67 (1958): 166–73; Strawson, *Individuals*, chap. 6.

[38]Keith Donnellan, "Reference and Definite Descriptions," *Philosophical Review* 75 (1966): 281–304. See, also, Leonard Linsky, "Reference and Referents," in *Philosophy and Ordinary Language*, ed. Charles Caton (Urbana: University of Illinois Press, 1963).

person picked out by the speaker seems partly independent of the description that the speaker associates with his act of reference.

The decisive further move was made in 1970 by Kripke and Donnellan, independently of one another. They produced a series of examples that indicated that the referents of proper names are in many cases not fixed by any set of descriptions the speaker associates with the name—or even by descriptions associated with the name by members of the speaker's community.[39] To use one of Kripke's examples, 'Jonah' might refer to a definite prophet, even though much of the descriptive material associated with the name is false, and even if not enough were known about the relevant historical figure to describe him in such a way as to distinguish him from all other historical figures. The speaker's whole community of contemporaries might be ignorant. Yet the name might still have a definite referent.

Implicit in the examples was a positive account of how the reference of names is fixed. The reference seemed to depend on relations between the speaker and his social and physical environments that are best understood not by investigating the speaker's mental repertoire but by inquiring into the chain of circumstances that led to the speaker's acquisition or present use of the name. These relations involve a mix of causal and intentional elements and include a person's reliance on others to fix a referent. Kripke sketched a picture according to which there was an initial dubbing or baptism, followed by a chain of uses of the name that are presumed by the users to maintain the referents of uses by those from whom they acquired the name. Such a chain of uses might maintain a referent even if descriptions associated with the name changed or became distorted. The conditions under which the chain maintains an initial referent, or changes to a new one, were subsequently found to be quite complicated.[40] But the rough shape of the account has come to be widely accepted.

[39]Saul Kripke, *Naming and Necessity* (Cambridge: Harvard University Press, 1972); Keith Donnellan, "Proper Names and Identifying Descriptions," in *Semantics of Natural Language*, ed. Davidson and Harman (Dordrecht, The Netherlands: Reidel, 1972).

[40]Cf. Gareth Evans, "The Causal Theory of Names," *Proceedings of the Aristotelian Society* 47 (suppl.) (1973): 187–208; Michael Devitt, *Designation* (New York: Columbia University Press, 1981).

Kripke embedded his account of names in a theory of necessity. He counted names "rigid designators"—expressions that maintained a certain constancy of reference through variation in the possible worlds by reference to which modal sentences might be evaluated. This theory revived a number of traditional questions about essence and necessity, which are outside the scope of this paper. In its enrichment of metaphysics as well as philosophy of language, however, Kripke's *Naming and Necessity* is a major landmark of the period.

Kripke and Putnam, independently, provided examples for thinking that natural kind terms are, like proper names, dependent for their referents not on a set of associated descriptions but on complex relations to the environment.[41] Putnam also sketched an approach to understanding the meaning of natural kind terms that was based on accounting for the fact that we can successfully explain to someone in short order how to use many common nouns. He proposed that the "meaning" of a term be conceived as a combination of the referent of the term with what he called a stereotype. The stereotype need not be complete enough to fix the referent by itself. It might even be untrue of the referent. Its role is to help another person in a given community to get on to the referent. This sketch has a number of problems. But it seems to me to be valuable in its attempt to explicate the success of dictionaries and other short, purpose-dependent explanations of meaning in our ordinary lives.

The main upshot of these papers on reference has been to portray reference as dependent on more than the beliefs, inferences, and discriminatory powers of the individual. Reference seems to depend on chains of acquisition and on the actual nature of the environment, not purely on the beliefs and discriminative abilities of the person doing the referring. This result suggests that reference cannot be reduced to psychological states of individuals, unless these states are themselves individuated partly in terms of the individual's relations to his community and/or physical environment.

[41]Saul Kripke, *Naming and Necessity*; Hilary Putnam, "Is Semantics Possible?" (1970), in *Philosophical Papers*, vol. 2 (Cambridge: Cambridge University Press, 1975).

Some philosophers have maintained that there is nothing more to the "meaning" or semantical value of certain expressions—for example, proper names and demonstratives—than their referents. Such expressions are counted "directly referential." Others have held that such expressions express a Fregean sense that indicates a unique referent, but that is not easily paraphrased in language. Yet others maintain an intermediate view.[42]

The terms of this dispute are, in my opinion, often less clear than they might be. Many of the differences hinge on what is to be meant by 'meaning' or 'semantics'. Insofar as one sees these notions as applying to some communally common mastery of what is said—some idealized common denominator of understanding—then the direct reference views have substantial plausibility, at least as applied to some linguistic contexts. Insofar as one follows Frege in seeing these notions as applying to intentional cognitive content, something that individuals are expressing in thought in the use of these expressions, the direct reference views are inapplicable. Problems in this area, including several that survive clarification of the objectives of "semantics," remain a source of ferment.

Looking back over the last thirty years, I find the results on reference and some of those on logical form more substantial and durable than the results in the theory of meaning. The torrent of talk about a *theory* of meaning has even come to seem a bit naive. All the approaches to meaning seem to have some merit in bringing to

---

[42]The "direct reference" view is at least suggested by Kripke. But its main proponent has been David Kaplan, "Demonstratives," in *Themes from Kaplan*, ed. Almog, Perry, and Wettstein (New York: Oxford University Press, 1989). Cf., also, various articles in *Propositions and Attitudes*, ed. Salmon and Soames (Oxford: Oxford University Press, 1988). A neo-Fregean view is developed in John McDowell, "On the Sense and Reference of a Proper Name," *Mind* 86 (1977): 159–85; in Gareth Evans, *The Varieties of Reference* (Oxford: Oxford University Press/Clarendon, 1982); and in Diana Ackerman, "Proper Names, Propositional Attitudes, and Non-Descriptive Connotations," *Philosophical Studies* 35 (1979): 55–69. Two significantly different intermediate views may be found in John Searle, *Intentionality* (Cambridge: Cambridge University Press, 1983); and in Tyler Burge, "Belief De Re," *Journal of Philosophy* 74 (1977): 338–63, and "Russell's Problem and Intentional Identity," in *Agent, Language and the Structure of the World*, ed. James Tomberlin (Indianapolis: Hackett, 1983).

light some aspect of the complex notion. The metadiscussion of what might be involved in a theory of meaning has been of genuine philosophical interest. But nothing that could be called a theory has elicited much agreement or shown many of the other sociological symptoms of systematic theoretical knowledge. It may be that the problem is too complex and simply needs more time. Or it may be that Quine (and implicitly Davidson) is right that a theory of meaning in anything like the accepted sense is not possible. Philosophers of language who have worked on meaning have usually wanted—and even presumed that they must have—a theory that reduces meaning to something more basic or scientifically "respectable." They have wanted a theory that explains what meaning is in other terms. But the notion may not be suitable to such explanation or reduction. It may be too multifaceted. There may be no general notion of meaning that will serve as explanandum. Various associated sub-notions may be more suitable. Or the notion(s) of meaning may be too basic—so that a theory *of* meaning may be less appropriate than theories that make use of various notions of meaning.

However this may be, it seems unlikely that cognitive psychology and linguistics—much less philosophy and ordinary discourse—will do without some conception(s) of meaning. Some notion of intentional content is needed to talk about propositional attitudes. And the linguistic practices of paraphrase and semantical explication are too regular to make it credible that they are without cognitive import. The idea that there is something cognitively suspect about the notion of meaning—an idea that has been made common by Quine's doubts during the last forty years—seems to me difficult to support. There are many such notions in ordinary life that do not enter into general laws of the sort found in the natural sciences. It would be absurd to suggest that all such notions are cognitively disreputable. Nevertheless, extreme care is required in the use of notions of meaning. Such notions will probably remain a topic of philosophical discussion for the foreseeable future.

Gradually but unmistakably, in the latter part of the 1970s, the philosophy of language lost its place as the dominant starting point for philosophical activity. No other area of philosophy assumed quite the status that the philosophy of language had had since the 1950s. But the degree of interest in relatively "pure" philosophy of

language has certainly diminished. Moreover, there has been a perceptible shift of ferment toward issues in the philosophy of mind.

Some reasons for this change are internal to the subject. The discussions of meaning by Quine and Grice showed that there is a systematic interplay between meaning and propositional attitudes, like belief and intention. Although most discussion of language made some reference to this relation, there had been little concentrated reflection on the propositional attitudes. Therefore, dialectical pressure built toward a shift to the philosophy of mind.

Another internal reason was that some of the most difficult and persistent specific problems within the philosophy of language—accounting for Frege's puzzle about Hesperus and Phosphorus in the light of the new theory of reference, accounting for the cognitive value of demonstratives, giving an account of the truth conditions and logical form of sentences about propositional attitudes, explicating *de re* belief—all pointed toward the philosophy of mind.

A broader internal reason is that the philosophy of language seemed to have exhausted some of its promise in illuminating traditional philosophical questions, the questions that drew most philosophers into the subject. The original hope—among the positivists and among postpositivist philosophers of language—was that by clarifying issues about language, philosophy would put itself on a firmer footing for understanding the larger traditional problems. There is no simple account of how much of this hope was fulfilled. The philosophy of language improved methods of argument and sensitivity to relevant distinctions. It opened up perspectives on traditional issues that are new and worthwhile. And at least as regards the theory of reference, it laid the groundwork for a very different conception of many traditional issues. But by the late 1970s or early 1980s philosophy of language no longer seemed the obvious propaedeutic for dealing with central philosophical problems.

As I have intimated, one ground for this shift was that many philosophers felt that philosophy of language had done its job—that the natural development of philosophical reasoning led into the philosophy of mind, or other adjacent areas. Another ground was that some of the discussions, particularly of the theory of meaning and of what "semantics" should or should not do, seemed to be at impasses. There has been a paucity of important, large, new philosophical ideas in the subdiscipline for over a decade.

A further ground lay in the increasing specialization of the philosophy of language. One product of success was the development of a vocabulary and set of problems that had lives of their own—not directly dependent on issues in the rest of philosophy. Much of the work on logical form has passed into linguistics. Some of the work in the semantics of reference and on the (disputed) border between semantics and pragmatics seemed to gain in precision and systematic power by making idealizations that ruled many difficult philosophical problems out of court. This is sometimes the method of a successful science. But it reduces the motivation to study the philosophy of language for larger philosophical rewards.

An external reason for the shift was the rise of the computer paradigm in psychology, and the appearance of intellectually substantial findings in psychology that had apparent significance for philosophical problems.

I want now to sketch some of the main developments in the philosophy of mind since the 1950s.

Behaviorism dominated psychology during approximately the same period that logical positivism dominated philosophy. The principles of behaviorism are less easily stated than those of logical positivism. It is perhaps better seen as a method that eschewed use of mentalistic vocabulary in favor of terms that made reference to dispositions to behavior. Both movements aimed at banishing nonscientific speculation, and forcing theory to hew as closely as possible to methods of confirmation. Both methodological doctrines came to be seen as restrictive, even on the practice of science.

Behaviorism had a run of influence within philosophy. It was a favored view of some of the later positivists. They made use of the verificationist principle to attempt to dissolve the mind-body problem and the problem of other minds, declaring these problems meaningless. And they appealed to behavioral analyses of mentalistic terms as a way of maintaining strict experimental control on mentalistic language. The simplistic picture of confirmation associated with the verificationist principle, a picture that ignored the role of auxiliary hypotheses, paralleled and abetted the behaviorist blindness to the role of background assumptions in mentalistic attributions. As we shall see, this blindness led to the collapse of behaviorism.

In postwar, postpositivistic philosophy, the early logical construc-

tionists thought that behavioristic language was the most suitable way to "reconstruct" mentalistic language in scientific terms. Ordinary-language philosophers purported to find behavioristic underpinnings for ordinary language. Behaviorism influenced positivistic construals of psychology, Quine's theory of the indeterminacy of translation, Ryle's work on the concept of mind, and Malcolm's explications of discourse about dreaming and sensations.[43] These philosophers shared a tendency to think that theorizing in psychology or philosophy of mind should dispense with mentalistic vocabulary, or interpret it in nonmentalistic terms, as far as possible. They thought that such vocabulary should be largely replaced with talk about stimulations and about dispositions to behavior. Some philosophers thought that ordinary mentalistic terms could be defined or adequately explicated (for any cognitively respectable purpose) in these latter terms. Others thought that ordinary mentalistic terms were hopelessly unscientific or philosophically misleading, so no real explication was possible.

The demise of behaviorism in philosophy is less easily attributed to a few decisive events than is the fall of logical positivism. There were a series of influential criticisms of behaviorism beginning in the late 1950s and extending on for a decade.[44] The main cause of the shift seemed, however, to be a gradually developed sense that behaviorist methods were unduly restrictive and theoretically unfruitful. A similar development was unfolding within psychology, linguistics, and computer science, with an array of nonbehaviorist articles in the late 1950s and early 1960s.[45]

---

[43]Gilbert Ryle, *The Concept of Mind* (London: Hutchison, 1949); Norman Malcolm, *Dreaming* (London: Routledge and Kegan Paul, 1959); Quine, *Word and Object*.

[44]Roderick Chisholm, *Perceiving* (Ithaca, N.Y.: Cornell University Press, 1957), chap. 11; Peter Geach, *Mental Acts* (London: Routledge, 1957), chap. 1; Noam Chomsky, review of *Verbal Behavior*, by B. F. Skinner, *Language* 35 (1959): 26–58, reprinted in *The Structure of Language*, ed. Fodor and Katz (Englewood Cliffs, N.J.: Prentice-Hall, 1964); Hilary Putnam, "Brains and Behavior" (1963), in *Philosophical Papers*, vol. 2; Jerry Fodor, *Psychological Explanation* (New York: Random House, 1968).

[45]In psychology: George Miller, "The Magic Number 7 Plus or Minus Two: Some Limits on Our Capacity for Processing Information," *Psychological Review* 63 (1956): 81–97; J. Bruner, J. Goodnow, and G. Austin, *A*

The attempts to provide behavioristic *explications* of mentalistic terms fell prey to various instances of a single problem. The behavioristic explications succeeded only on the implicit assumption that the individual had certain background beliefs or wants. As a crude illustration, consider an explication of belief as a disposition to assert. Even ignoring the fact that "assert" is not a behavioral notion, but presupposes assumptions about mind and meaning, the analysis could work only with the proviso that the subject wants to express his beliefs and knows what they are. Eliminating these mentalistic background assumptions proved an impossible task, given behaviorist methodological strictures. The problem, stated less methodologically, is that mental causes typically have their behavioral effects only because of their interactions with one another.

As behaviorism slipped from prominence in philosophy in the 1950s and early 1960s, it left two heirs, which gradually formed an uneasy alliance. One of these heirs was naturalism. The other was functionalism.

A doctrine I will call "naturalism" (and sometimes called "physicalism") emerged first as a distinctive point of view in the philosophy of mind in the early 1950s. This view maintains two tenets. One is that there are no mental states, properties, events, objects, sensations over and above ordinary physical entities, entities identifiable in the physical sciences or entities that common sense would regard as physical. The formulation's vague expression "over and above" matches the doctrine's vagueness: the doctrine does not entail an identity theory in ontology. It does require some sort of materialism about the mind. Naturalism coupled this ontological position with an ideological or methodological demand. It de-

---

Study of Thinking (New York: John Wiley, 1956); G. Miller, E. Galanter, and K. Pribram, *Plans and the Structure of Behavior* (New York: Holt, Rinehart & Winston, 1960); G. Sperling, "The Information Available in Brief Visual Presentations," *Psychological Monographs* 24 (1960); Ulrich Neisser, "The Multiplicity of Thought," *British Journal of Psychology* 54 (1963): 1–14; M. I. Posner, "Immediate Memory in Sequential Tasks," *Psychology Bulletin* 60 (1963): 333–49; S. Sternberg, "High-Speed Scanning in Human Memory," *Science* 153 (1966): 652–54. In linguistics: Noam Chomsky, *Syntactic Structures* (The Hague: Mouton, 1957). In computer science: Newell, Shaw, and Simon, "Elements of a Theory of Human Problem Solving," *Psychological Review* 65 (1958): 151–66.

manded that mentalistic discourse be reduced, explained, or eliminated in favor of discourse that is "acceptable," or on some views already found, in the natural or physical sciences. Thus, we find repeated calls for "explaining" rationality or intentionality. In its materialism, naturalism emphasized ontology in a way that behaviorism did not. Its ideological program, however, continued the behaviorist attempt to make psychology and philosophy of mind more scientific by limiting the supposed excesses of mentalism.

As I have noted, many of the later logical positivists were naturalists. But issues about mind tended to be submerged in the general positivist program. The mind-body problem began to receive direct attention from a naturalistic point of view in articles by Quine, Place, and Smart, in the 1950s.[46] Place and Smart tried to identify mental states and events—primarily sensations and afterimages—with physical states and events. Smart thought that one could identify types of sensations in a "topic-neutral" way that would leave it open whether they were physical; he then predicted that each type of sensation would turn out to be a neural state of some kind. For example, he paraphrased "I am having an afterimage of an orange" as "I am in a state like the one I am in when I am seeing an orange." He thought that this translation would overcome any conceptual obstacles to identifying mental states with physical states. It would sidestep, for example, issues about the qualitative properties of afterimages. Science was supposed to settle the mind-body problem empirically—in favor of what came to be known as *type-type identity theory,* or *central state materialism.*

During the mid to late 1960s materialism became one of the few orthodoxies in American philosophy. It is difficult to say why this happened. No single argument obtained widespread acceptance. Perhaps the success in biochemistry during the 1950s in providing some sense of the chemical underpinnings of biological facts encouraged the expectation that eventually mental facts would receive a similar explication in neural terms. Moreover, there were some spectacular advances in animal neurophysiology during the

[46]W. V. Quine, "On Mental Entities" (1952), in *Ways of Paradox*; U. T. Place, "Is Consciousness a Brain Process?" *British Journal of Psychology* 47 (1956): 44–50; J. J. C. Smart, "Sensations and Brain Processes," *Philosophical Review* 68 (1959): 141–56.

period.[47] Perhaps the attempts of the positivists and behaviorists to make philosophy scientific had as a natural outgrowth the view that philosophical problems would eventually be solved by progress in the natural sciences—with the help of analytical clarification by philosophers. In any case, several philosophers in the 1960s defended either some form of the type-type identity theory or some form of eliminationism (the view that mentalistic talk and mental entities would eventually lose their place in our attempts to describe and explain the world).[48]

The most influential paper of this period was written several years before: Sellars's "Empiricism and the Philosophy of Mind" (1956). The article is a grand attempt to portray mental episodes as explanatory posits that hold a place in our conceptual scheme by virtue of their explanatory usefulness.[49] Sellars tried to undermine the view that knowledge of one's own mental events was intrinsically privileged or posed an obstacle to the empirical discovery that mental events are neural events. Although in my view the argumentation in this paper is not satisfyingly clear or convincing, the picture it paints of the status of mentalistic discourse is profoundly conceived.

Whereas materialism became widely accepted during the 1960s, issues surrounding naturalism's ideological demand remained intensely controversial. Putnam raised a serious objection to type-

[47]J. Y. Lettvin et al., "What the Frog's Eye Tells the Frog's Brain," *Proc. Inst. Radio Engrs.* 47 (1959); D. H. Hubel and T. N. Wiesel, "Receptive Fields of Single Neurones in the Cat's Striate Cortex," *Journal of Physiology* 148 (1959): 574–91; Hubel and Wiesel, "Receptive Fields, Binocular Interaction, and Functional Architecture in the Cat's Visual Cortex," *Journal of Physiology* (London) 160 (1962): 106–54.

[48]The central state identity theory is defended in D. M. Armstrong, *A Materialist Theory of the Mind* (New York: Humanities Press, 1968); David Lewis, "An Argument for the Identity Theory," *Journal of Philosophy* 63 (1966): 17–25. Eliminative materialism, which derives from Quine, is defended in Paul Feyerabend, "Materialism and the Mind-Body Problem," *Review of Metaphysics* 17 (1963): 49–66; Richard Rorty, "Mind-Body Identity, Privacy, and Categories," *Review of Metaphysics* 19 (1965): 24–54; and Daniel Dennett, *Content and Consciousness* (New York: Routledge and Kegan Paul, 1969). Many of these works, and several other significant ones, are collected in *Modern Materialism: Readings on Mind-Body Identity*, ed. O'Connor (New York: Harcourt, Brace, and World, 1969).

[49]In Wilfrid Sellars, *Science, Perception, and Reality* (London: Routledge and Kegan Paul, 1963).

type identity theories of the sort that Smart had made popular. He suggested that it is implausible that a sensation like pain is identical with a single neural state in all the many organisms that feel pain, in view of their enormously varied physiologies. He also pointed out that it is even more implausible to think that any given type of thought—for example, a thought that thrice 3 is 9 or a thought that one's present situation is dangerous—is realized by the same physical state in every being that thinks it. Not only the probable existence of extraterrestrials, the variety of higher animals, and the possibility of thinking robots (a possibility most materialists were eager to defend), but the plasticity of the brain seemed to make the type-type identity theory untenable.[50] Mental states seemed "multirealizable." Materialism maintained its dominance, but needed a new form. Putman's observation seemed to show that if mentalistic discourse was to be explicated in "scientifically acceptable" terms, the terms would have to be more abstract than neural terms.

Responses to Putnam's observation led to a more specific materialist orthodoxy. The response proceeded on two fronts: ontological and ideological. Most materialists gave up the type-type identity theory in favor of an ontology that came to be known as the token identity theory. Although a mental state- or event-kind was not identified with any one physical (neural) kind, each instance of a mental state and each particular mental event token was held to be identical with some instance of a physical state or with some physical event token. This claim allowed that the occurrence of a thought that thrice 3 is 9 could be identical with the occurrence of one sort of physical event in one person, whereas a different occurrence of the same kind of thought could be identical with the occurrence of a different sort of physical event in another person.

Although this ontological position is still widely maintained, no one argument for it has gained wide acceptance. The commonest consideration adduced in its favor is its supposed virtue in simplifying our understanding of mind-body causation. Davidson gave a

[50]Hilary Putnam, "The Nature of Mental States" (1967), in *Philosophical Papers*, vol. 2; Ned Block and Jerry Fodor, "What Psychological States Are Not," *Philosophical Review* 81 (1972): 159–81.

profound but controversial *a priori* argument along these lines.[51] He held, first, that there are causal relations between mental and physical events; second, that causal relations between events must be backed by laws of a complete, closed system of explanation ("backed" in the sense that the predicates of the laws must be true of the events that are causally related); third, that there are no psychophysical or purely mentalistic laws that form a complete, closed system of explanation. He concluded that since there can be no psychophysical or mentalistic laws that would provide the relevant backing for the causal relations between mental and physical events, there must be purely physical laws that back such relations. This is to say that physical predicates apply to mental events—that mental events are physical.

Davidson has not been ideally clear or constant in formulating and arguing for the third premise. But given the conception of "complete, closed system" that he usually adverts to, this premise seems plausible. The second premise is more doubtful. I do not think it *a priori* true, or even clearly a heuristic principle of science or reason, that causal relations must be backed by any particular kind of law. I think that we learn the nature and scope of laws (and the variety of sorts of "laws") that back causal relations through empirical investigation. It is not clear that psychophysical counterfactual generalizations—or nonstrict "laws"—cannot alone "back" psychophysical causal relations.

Most philosophers accepted the token identity theory as the simplest account that both reconciled materialism with multirealizability and raised no metaphysical issues about mind-body causation. Insofar as the view rests on the hope of finding empirical correlations between types that would inductively support token identities, however, it seems highly speculative. Some philosophers adopted an even more liberal materialism. They held, roughly, that although an instance of a mental event kind may not be an instance of a physical natural kind, they are always *constituted* of events that are instances of physical natural kinds.[52]

---

[51]Donald Davidson, "Mental Events" (1970), in *Essays on Actions and Events*.

[52]Geoffrey Hellman and Frank Wilson Thompson, "Physicalist Materi-

In any case, materialism in one form or another has widespread support among North American philosophers, largely on grounds of its supposed virtues in interpreting causation between mental and physical events. There is a vague sense abroad that alternatives amount to superstition. One common idea is that there is some intrinsic mystery in seeing mental events, imagined as nonphysical, as interacting with physical events. Descartes thought this too; and perhaps there was some plausibility to it, given his conceptions of mental and physical substance. But Cartesian conceptions of substance are not at issue nowadays, and the exact nature of the problem in its modern form needs clearer articulation than it is usually given.

A better-reasoned argument along these lines goes as follows. Macrophysical effects depend on prior macro physical states or events according to approximately deterministic patterns described by physical laws. Mental causes often give rise to physical movements of human bodies. If such causation did not consist in physical processes, it would yield departures from the approximately deterministic patterns described by physical laws. It would interfere with, disrupt, alter, or otherwise "make a difference" in the physical outcomes. But there is no reason to think that this occurs. Physical antecedent states seem to suffice for the physical effects. Appeal to mentalistic causation that does not consist in physical causation appears, on this reasoning, to invoke physically ungrounded causation that requires us to doubt the adequacy of current forms of physical explanation, even within the physical realm. Not surprisingly, such invocation is widely thought to be unattractive.

This reasoning—and other parallel arguments focusing on the effect of physical processes on mental states—has some force, perhaps enough to nourish materialism indefinitely. But I think that

---

alism," *Noûs* 11 (1977): 309–45; Richard Boyd, "Materialism Without Reductionism: What Physicalism Does Not Entail," in *Readings in Philosophy of Psychology*, vol. 1, ed. Block (Cambridge: Harvard University Press, 1980). Another source of reformulations of materialism has been the discussion of supervenience principles. Cf. Jaegwon Kim, "Causality, Identity, and Supervenience in the Mind-Body Problem," *Midwest Studies in Philosophy* 4 (1979): 31–50. It is worth noting, however, that supervenience of the mental on the physical does not entail materialism.

materialism merits more skepticism than it has received in North American philosophy during the last two decades. At any rate, the argument just outlined is not as forceful as it may appear.

Why should mental causes of physical effects interfere with the physical system if they do not *consist in* physical processes? Thinking that they must surely depends heavily on thinking of mental causes on a physical model—as providing an extra "bump" or transfer of energy on the physical effect. In such a context, instances of "overdetermination"—two causes having the same effect—must seem to be aberrations. But whether the physical model of mental causation is appropriate is part of what is at issue. Moreover, the sense in which mental causes must "make a difference" if they do not consist in physical processes is in need of substantial clarification. There are many ways of specifying differences they do make that do not conflict with physical explanations.

It seems to me that we have substantial reason, just from considering mentalistic and physicalistic explanatory goals and practice—before ontology is even considered—to think that mentalistic and physicalistic accounts of causal processes will not interfere with one another. They appeal to common causes (in explaining the physiology and psychology of cognitive processes, for example) and common or at least constitutively related effects (in physiological and psychological explanations of an instance of a man's running to a store, for example). It seems to me perverse, independently of ontological considerations, to assume that these explanations might interfere with one another. They make two few assumptions about one another to allow such an assumption.

There are surely *some* systematic, even necessary, relations between mental events and underlying physical processes. It seems overwhelmingly plausible that mental events depend on physical events in some way or other. But constitution, identity, and physical composition are relations that have specific scientific uses in explaining relations between entities invoked in physical chemistry and biochemistry. These relations so far have no systematic use in nonmetaphysical, scientific theories bridging psychology and neurophysiology. They seem to me to be just one set of possibilities for accounting for relations between entities referred to in these very different explanatory enterprises. Where science does not make clear use of such relations, philosophy should postulate them with some diffidence.

The apparent fact that there are no gaps in physical chains of causation and that mental causes do not disrupt the physical system is perhaps ground for some sort of broad supervenience thesis—no changes in mental states without some sort of change in physical states. But the inference to materialism is, I think, a metaphysical speculation that has come, misleadingly, to seem a relatively obvious scientific-commonsensical bromide.

The issue of mind-body causation is extremely complex and subtle. In recent years, this issue has become an object of intense interest. Much of the discussion concerns "epiphenomenalism."[53] The causal picture that motivates materialism is so firmly entrenched that many philosophers have come to worry that mental "aspects" of events really do not "make a difference": Maybe mental "aspects" or properties are causally inert and just go along for a ride on physical properties of physical events, in something like the way that relations between phenotypal properties of parents and their offspring ride inertly and parasitically on underlying causal relations characterized by the genetic properties of parents and offspring. I think that these worries can be answered, even within a materialist framework. But I think that the very existence of the worries is the main point of philosophical interest. The worry about epiphenomenalism is, in my view, a sign that materialist theories have done a poor job of accounting for the relation between mind-body causal interaction and mentalistic explanation. They have done little to account for the fact that virtually all our knowledge and understanding of the nature and existence of mental causation derives from mentalistic explanations, not from non-intentional functionalist or neurological accounts.[54]

We determine the nature of the causation, and the sort of laws or lawlike generalizations that accompany it, by scrutinizing actual

[53]Cf., for example, Jaegwon Kim, "Epiphenomenal and Supervenient Causation," *Midwest Studies* 9 (1984): 257–70; Ernest Sosa, "Mind-Body Interaction and Supervenient Causation," ibid., 271–82; Ned Block, "Can the Mind Change the World?" in *Meaning and Method: Essays in Honor of Hilary Putnam*, ed. Boolos (Cambridge: Cambridge University Press, 1990).

[54]The lack of attention to our source of knowledge of mental causation is one reason why there has recently been a small outpouring of worries among materialists that a form of epiphenomenalism—the view that mentalistic properties or descriptions are causally irrelevant—must be taken seriously.

explanations in psychology and ordinary discourse. If there turned out to be no clear sense in which mental events fell under predicates that are uncontroversially physical, then it would seem reasonable to count the mental events nonphysical. As far as I can see, there is no reason to be anything but relaxed in the face of this possibility. I see no powerful, clearly articulated reason for worrying about the existence of mind-body causation, or the gaplessness of chains of physical events, if this possibility were realized. What counts in supporting our belief in mind-body causation is the probity of mentalistic explanations. As long as they are informative and fruitful, we can assume that they are relating genuine events, whatever their metaphysical status.

Otherwise put: The theme in naturalism that deserves the status of orthodoxy is not its materialism and not its demand that mentalistic discourse be given some ideologically acceptable underpinning. It is its implicit insistence that one not countenance any form of explanation that will not stand the scrutiny of scientific and other well-established, pragmatically fruitful methods of communal check and testing. (More crudely, it is the opposition to miracles and to postulation of unverified interruptions in chains of causation among physical events.) But the relevant methods are to be drawn from reflection on what works in actual explanatory practice, not from metaphysical or ideological restrictions on these practices. These points are subject to various interpretations. But I think that taking them seriously motivates less confidence in materialist metaphysics than is common in North American philosophy.

I have been discussing ontological responses to Putnam's observation that various kinds of physical states could be, and are, associated with mental states of a given type. The ideological response to Putnam's observation was the development of a new paradigm for indicating how mental states could be given identifications in nonmentalistic terms. Philosophers looked not to neurophysiology but to computer programming as a source of inspiration. Identifying a mental state with some sort of abstract state of a computer appeared to avoid the problems of identifying mental kinds with neural kinds. And unlike the nonreductive forms of token-identity materialism, it promised means of explaining mentalistic notions in other terms, or at least of supplementing and illuminating mentalistic explanation. Most philosophers found the terms of this sup-

plementation compatible with materialism. This new account came to be known as *functionalism*.[55]

The guiding intuition of functionalism was that what entirely determines what kind of state or event a mental state or event is, is its place in a causal or functional network in the mental life of the individual. The original stimulus to this view was a proposed analogy between the mind and a computer program. To specify such a program, one needed to specify possible inputs into the system, the operations that would pass the machine from one state to another, the states that the machine would pass through, and the output of the machine, given each possible input and given the states it was already in. The machine might be either deterministic or probabilistic. On most versions of functionalism, the internal states were to be specified purely in terms of their "place" in the system of input and output—in terms of the possible dependency relations they bore to other states and ultimately to input and output. Input and output were to be specified in nonintentional, nonmentalistic terms. Types of mental states and events were supposed to be determined entirely by the relations of functional dependency within the whole system of input and output.

The notion of determination is subject to three main interpretations. One, the least ambitious and least reductive, claims only that each mental kind supervenes on a place in the functional system, in the sense that the individual would be in a different kind of mental state if and only if he were not in the functional state corresponding to that kind. The other two purport to say what mental kinds "consist in." One version ("analytic functionalism") claims that a functionalist specification of such relations explicates the meaning of mentalistic terms. Another ("scientific functionalism")

[55]Cf. A. M. Turing, "Computing Machinery and Intelligence," *Mind* 59 (1950). Turing's article provided an impetus and a vivid illustration of the computer paradigm, but it was itself an expression of behaviorism about the mind. The papers that inspired machine functionalism were Hilary Putnam's, "Minds and Machines," (1960), "Robots: Machines or Artificially Created Life?" (1964), and "The Mental Life of Some Machines" (1967), in *Philosophical Papers*, vol. 2. Putnam states an explicitly functionalist view in "The Nature of Mental States" (1967), but the idea is not far from the surface of his earlier papers. A type of functionalism less tied to computers was proposed in David Lewis, "An Argument for the Identity Theory" (1966), and David Armstrong, *A Materialist Theory of the Mind* (1968).

makes the lesser claim that such a specification gives the true essence of mental kinds, in something like the way that molecular constitution gives the true essence of a natural kind like *water*. Both of these latter two versions claim that functionalist discourse provides the "real explanatory power" latent in mentalistic explanation.[56]

Analytic and scientific functionalism are clearly liberalized heirs to behaviorism. They share with behaviorism the insistence on nonintentional specifications of input (stimulus) and output (response), and the belief that mentalistic explanation is somehow deficient and needs a nonmentalistic underpinning. They also expand on the behaviorist idea that mental states are individuated partly in terms of their relations. Whereas behaviorists focused largely on relations to behavior, functionalists included relations to other mental states, and relations to stimulating input into the system. This is an insight already present in Frege, who claimed that sense is inseparable from a network of inferential capacities.

It has been common to combine functionalism with token-identity materialism. Functionalism was supposed to provide insight into the nature of mental kinds, whereas token-identity materialism provided insight into the nature of mental particulars—into the instantiation of the mental kinds in particular individuals. The computer analogy seemed compelling to many: mentalistic discourse was a sort of gloss on an underlying network functional flow chart, which was ultimately realized in different physical ways in different machines or organisms. Thus neural descriptions were seen as lying at the bottom of a three-level hierarchy of descriptions of the same human subject.

[56]The nonreductive version is the least common. It is expressed in the introduction of Jerry Fodor's, *RePresentations* (Cambridge: The MIT Press, 1981), but he maintains it neither very long before nor very long after. The analytic version may be found in D. M. Armstrong, *A Materialist Theory of Mind*; David Lewis, "Psychophysical and Theoretical Identification," *Australasian Journal of Philosophy* 50 (1972): 249–58; Sydney Shoemaker, "Functionalism and Qualia" (1975), in his *Identity, Cause and Mind* (Cambridge: Cambridge University Press, 1984). Putnam proposed the scientific version in "The Nature of Mental States." A view more instrumentalist than functionalist but which bears broad comparison appears in Daniel Dennett, "Intentional Systems," *Journal of Philosophy* 68 (1971): 87–106.

The functionalist position—in its least reductionist garb—was given distinctive form by Fodor. Fodor maintained that the intentional content of propositional attitudes is irreducible via functionalist specifications. But he held that such content is expressed by inner mental representations that have syntactic properties, inner words and sentences that were presumed to be instantiated somehow in the brain. Fodor further claimed that mental representations have their causal roles in virtue of their formal or syntactic properties, and that the input and output of functionalist specifications should be seen as symbols.[57] This picture brought the functionalist tradition into line with a fairly literal interpretation of the computer analogy: psychological explanation was modeled on *proofs* or other types of symbol manipulation by a digital computer. The causal aspects of psychological explanation were to be understood in terms of the physical relations among the particular neural states or events that instantiated the symbolic representations.

Something like this picture had been proposed by Sellars.[58] But Fodor presented his view as an interpretation of work in psycholinguistics and cognitive psychology. To many it gained plausibility because of its appeal to specific scientific practices. The picture and its relation to psychological theory are still very much in dispute.[59] Fodor's work drew attention from linguists, psychologists, and computer scientists. It also benefited from and helped further a significant shift in the degree to which the details of scientific practice were seen to be relevant to philosophical problems about mind.

---

[57]Jerry A. Fodor, *The Language of Thought* (Cambridge: Harvard University Press, 1975) and *RePresentations*. Cf., also, Hartry Field, "Mental Representation," *Erkenntnis* 13 (1978): 9–61.

[58]Wilfrid Sellars, "Some Reflections on Language Games" (1954), in *Science, Perception and Reality*. Cf., also, Gilbert Harman, *Thought* (Princeton: Princeton University Press, 1973).

[59]For opposition from different angles to the computer analogy or to other aspects of the language-of-thought hypothesis, see Paul M. Churchland, *Scientific Realism and the Plasticity of Mind* (Cambridge: Cambridge University Press, 1979); Christopher Peacocke, *Sense and Content* (Oxford: Oxford University Press/Clarendon, 1983); Stephen Stich, *From Folk Psychology to Cognitive Science* (Cambridge: The MIT Press, 1983); Robert Stalnaker, *Inquiry* (Cambridge: The MIT Press, 1984); Daniel Dennett, *The Intentional Stance* (Cambridge: The MIT Press, 1987); Paul Smolensky, "On the Proper Treatment of Connectionism," *Journal of Behavioral and Brain Sciences* 11 (1988): 1–74.

Until the mid to late 1970s most philosophy in this area was carried on in a relatively *a priori* analytic spirit. Even those philosophers, such as type-type identity theorists or skeptics about mental states, who purported to take science as a model for philosophy of mind had little to say about the theories of any science. They saw themselves as freeing philosophy from obstacles to scientific progress (whose direction was often predicted with considerable confidence). This was true not only of the philosophy of mind, but of much of the rest of philosophy—even much of the philosophy of natural science, with the exception of historical work in the tradition of Thomas Kuhn.[60] It is an interesting question why such a shift occurred. A similar shift occurred in the philosophies of science and mathematics. Both disciplines undertook much more concentrated discussions of a wider variety of the details of scientific practice, beginning about fifteen years ago.[61] Philosophizing about biology, a science that had not conformed to positivist conceptions of law and explanation, came to prominence in this period.

Perhaps it took two decades for the criticisms of positivism to be digested sufficiently for a more open-minded consideration of the actual practice of the sciences to develop. In any case, interest in the details of psychology should be seen in the context of intellectual movements outside the scope of this essay.

The demise of behaviorism might similarly be viewed as requiring a period of assimilation before psychology could be considered a worthwhile object of philosophical reflection. Of course, there was a more positive side to the reconsideration of the practice of psychology. The computer paradigm was a natural object of inter-

[60]T. S. Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1962).

[61]The change in the philosophy of physics was foreshadowed by early articles of Hilary Putnam's—for example, "An Examination of Grünbaum's Philosophy of Geometry" (1963), "A Philosopher Looks at Quantum Mechanics" (1965), both in *Philosophical Papers*, vol. 1 (Cambridge: Cambridge University Press, 1975). But it caught on and received new impetus with the articles of John Earman—for example, "Who's Afraid of Absolute Space?" *Australasian Journal of Philosophy* 48 (1970): 287–319. For an overview of broadly analogous changes in the philosophy of mathematics, see Thomas Tymoczko, ed., *New Directions in the Philosophy of Mathematics* (Boston: Birkhauser, 1985).

est. The continuing success of Chomsky's program in linguistics, coupled as it was with claims that it was a part of a psychology of the mind, made philosophers increasingly interested in mentalistic psychology. And an intellectually substantial cognitive and developmental psychology, and psycholinguistics, offered new forms to questions relevant to traditional philosophical issues: the role of intentional content in explanation, the mind-body problem, differences between the natural and the human sciences, the relation between language and thought, the innateness and universality of various conceptual and linguistic structures, the scope and limits of human rationality.

How much the reflection on psychology will enrich and advance philosophical inquiry remains an open question. Quite a lot of the work in this area seems to me very unreflective. It is at best rare that scientific practice answers philosophical questions in a straightforward way. But philosophy has traditionally given and received aid in the rise of new sciences or new scientific paradigms.

Let us return to functionalism. Although functionalism has enjoyed substantial support—at least among specialists in the philosophy of mind—it has not lacked detractors. The analytic and scientific versions of functionalism have always been afflicted with a programmatic, unspecific character that has seemed to many to render them unilluminating as *accounts* of particular mental kinds.

There are more specific criticisms. Many philosophers find the application of any form of functionalism to sensations like pain or color sensations implausible. For them, the causal relations of the sensations seem less fundamental to their character than their qualitative aspects.[62]

[62]Criticism of this aspect of functionalism may be found in Ned Block, "Troubles with Functionalism," in *Minnesota Studies in the Philosophy of Science*, vol. 9, ed. C. W. Savage (Minneapolis: University of Minnesota Press, 1978), and "Are Absent Qualia Impossible?" *Philosophical Review* 89 (1980): 257–74. An influential article with a different, but related, point is Thomas Nagel, "What is It Like to Be a Bat?" *Philosophical Review* 83 (1974): 435–50. Cf., also, Frank Jackson, "Epiphenomenal Qualia," *Philosophical Quarterly* 32 (1982): 127–36. The numerous defenses of functionalism on this score include: Sydney Shoemaker, "Functionalism and Qualia," and "Absent Qualia are Impossible—a Reply to Block," in *Identity, Cause and Mind*; and David Lewis, "Mad Pain and Martian Pain" (1980), in his *Philosophical Papers*, vol. 1 (New York: Oxford University Press, 1983).

Searle mounted a controversial argument, similar to some of those directed against the applicability of functionalism to qualitative aspects of sensations, to show that functionalism could not account for any propositional attitudes. He postulated a room in which stations are manned by a person who does not understand Chinese, but who memorizes the Chinese words of given instructions. These stations are postulated to correspond to the stages of processing a language. The person is able to produce appropriate Chinese sentences as output, given any Chinese sentence as input. Searle claimed that although the system could be set up to meet the functionalist requirements for understanding Chinese, there is no understanding of Chinese in the room. Most opponents claim that the whole system can be credited with understanding Chinese. Searle finds this reply unconvincing.[63]

A more complex issue concerns the specific formulation of a functionalist account. Clearly, people can share meanings and many beliefs even though they maintain very different theories about the world. Maintaining different theories entails making different inferences, which correspond to different causal relations among the different sets of mental states associated with the theories. So not just any network of causal relations among mental states and events can be relevant to a functional account, on pain of counting no one as sharing any beliefs or meanings. One needs to find a network that is common to all the possible inference networks and theories in which any given belief (or meaning) might be embedded. But it is very difficult to imagine there being such common causal networks for each given belief (or meaning).[64]

Another approach to understanding intentional content and mental kinds developed out of the work on reference. That work showed that proper names and natural kind expressions could succeed in referring even though the speaker's knowledge of the ref-

---

[63]John Searle, "Minds, Brains, and Programs," *The Behavioral and Brain Sciences* 3 (1980). Searle's argument is anticipated in Ned Block, "Troubles with Functionalism."

[64]These problems have long been recognized. But as with some of the fundamental difficulties with positivism, such recognition does not always convince proponents of a program to give it up. For a summary of some of these problems, see Hilary Putnam, *Representation and Reality* (Cambridge: The MIT Press, 1988).

erent was incomplete or defective. Reference depends not just on background descriptions that the speaker associates with the relevant words, but on contextual, not purely cognitive relations that the speaker bears to entities that a term applies to.

The work on reference is relevant to the meaning of terms and to the identity of concepts. For the meaning of a wide range of nonindexical terms and the nature of a wide range of concepts are dependent on the referent or range of application in the sense that if the referent were different, the meaning of the term, and the associated concept, would be different. (Here let us simply take concepts to be elements in the intentional contents of propositional attitudes, elements that have referential aspects.) For example, different meanings or concepts would be expressed by the word-forms 'chair' and 'arthritis' if the word-forms did not apply exactly to chairs and to instances of arthritis.

The points about reference can be extended to many such terms and concepts. An individual can think of a range of entities via such terms and concepts even though the thinker's knowledge of the entities is not complete enough to pick out that range of entities except through the employment of those terms and concepts. What the individual knows about the range of entities—and hence about those many meanings or concepts whose identities are not independent of their referential range of applications—need not provide a definition that distinguishes them from all other (possible) meanings or concepts. So the meanings of many terms—and the identities of many concepts—are what they are even though what the individual knows about the meaning or concept may be insufficient to determine it uniquely. Their identities are fixed by environmental factors that are not entirely captured in the explicatory or even discriminatory abilities of the individual, unless those discriminatory abilities include application of the concept itself. Since most propositional attitudes, like specific beliefs, are the kinds of mental kinds that they are because of the meanings, concepts, or intentional contents that are used to specify them, the identities of many mental kinds depend on environmental factors that are not entirely captured in the (nonintentionally specified) discriminatory abilities of the individual. I have just developed one motivation for what is called "*anti-individualism.*"

Anti-individualism is the view that not all of an individual's mental states and events can be type-individuated independently of the

nature of the entities in the individual's environment. There is, on this view, a deep individuative relation between the individual's being in mental states of certain kinds and the nature of the individual's physical or social environments.

Anti-individualism was supported not only through abstract considerations from the theory of reference, but also through specific thought experiments. For example, one can imagine two individuals who are, for all relevant purposes, identical in the intrinsic physical nature and history of their bodies (described in isolation of their environments). But the two individuals can be imagined to have interacted with different metals (one aluminum, one an aluminum look-alike) in their respective environments. The metals need resemble one another only to the level of detail that the two individuals have noticed. The individuals know about as much about the metals as most ordinary people do, but neither could tell the difference if given the other metal. In such a case, it seems that one individual has thoughts like *aluminum is a light metal*, whereas the other individual (lacking any access to aluminum, even through interlocutors) has analogous thoughts about the other metal. Similar thought experiments appear to show that a person's thoughts can be dependent on relations to a social environment as well as a purely physical one. Some environmental dependence or other can be shown for nearly all empirically applicable terms or concepts.[65]

The thought experiments made trouble for the standard forms of functionalism, which limited specifications of input and output

[65]Tyler Burge, "Individualism and the Mental," *Midwest Studies* 4 (1979): 73–121; "Other Bodies," in *Thought and Object*, ed. Woodfield (London: Oxford University Press, 1982); "Intellectual Norms and Foundations of Mind," *Journal of Philosophy* 83 (1986): 697–720; "Cartesian Error and the Objectivity of Perception," in *Contents of Thought*, ed. Grimm and Merrill (Tucson: University of Arizona Press, 1988); "Wherein is Language Social?" in *Reflections on Chomsky*, ed. George (Oxford: Basil Blackwell, 1989). The thought experiments use the methodology set out in Hilary Putnam, "The Meaning of 'Meaning'" (1975), in *Philosophical Papers*, vol. 2. Putnam's argument, however, was not applied to intentional elements in mind or meaning. In fact, it contained remarks that are incompatible with anti-individualism about mental states. Much in subsequent papers is, however, anti-individualistic. Cf. "Computational Psychology and Interpretation Theory," in *Philosophical Papers*, vol. 3 (Cambridge: Cambridge University Press, 1983); *Representation and Reality*, chap. 5. But ambivalences remain. Cf. ibid., 19–22.

to the surfaces of the individual. They suggested that all an individual's internal functional transactions could remain constant, while his mental states (counterfactually) varied. Some philosophers proposed extending the functional network into the physical or social environments. Such a proposal reduces the reliance on the computer paradigm and requires a vastly more complex account. The main problems for it are those of accounting for (or specifying an illuminating supervenience base for) the notions of meaning, reference, and social dependence, in nonintentional terms. These are tasks commonly underestimated, in my view, because of the programmatic nature of the functionalist proposals.

Most philosophers seem to have accepted the thought experiments. But there remains disagreement about how they bear on mentalistic explanation, especially in psychology. Some have held that no notion of intentional content that is as dependent for its individuation on matters external to the individual could serve in explaining the individual's behavior. Many of these philosophers have tried to fashion surrogate notions of content or of "mental" states to serve explanatory purposes. Others have maintained that such positions are based on mistakes and that the ordinary notions of intentional content and mental state can and do play a role in ordinary explanation and explanation in psychology. The debate concerns the interpretation of actual psychological practice and the relation between psychological explanation and explanation in other sciences.[66]

In my view, however, the main interest of the thought experiments lies in their giving new forms to many old issues. The argu-

[66]For versions of the former approach, see Stephen White, "Partial Character and the Language of Thought," *Pacific Philosophical Quarterly* 63 (1982): 347–65; Stephen Stich, "On the Ascription of Content," in *Thought and Object*; Jerry Fodor, *Psychosemantics* (Cambridge: The MIT Press, 1987); Brian Loar, "Social Content and Psychological Content," in *Contents of Thought.* For defenses of anti-individualistic conceptions of psychology, see Fred Dretske, *Knowledge and the Flow of Information* (Cambridge: The MIT Press, 1981); Tyler Burge, "Individualism and Psychology," *Philosophical Review* 95 (1986): 3–45, and "Causation and Individuation in Psychology," *Pacific Philosophical Quarterly* 70 (1989): 303–22; Lynne Rudder Baker, *Saving Belief* (Princeton: Princeton University Press, 1987); and Robert Stalnaker, "What's in the Head," in *Philosophical Perspectives* 8 (1989): 287–316.

ments for anti-individualism are new. But the broad outline of the conclusion that they support is not. It is clearly maintained by Aristotle, Hegel, and Wittgenstein, and arguably present in Descartes and Kant.[67] Emergence of an old doctrine in a new form is a source of vitality in philosophy. Issues about self-knowledge, skepticism, *a priori* knowledge, personhood, the nature of meaning, the mind-body problem, are all deeply affected by considerations about necessary, individuative relations between an individual's mind and his environment. The line of development from the anti-descriptivist theories of reference to anti-individualist accounts of mind promises, I think, to enrich traditional philosophy.

I want to close by summarizing some of the main changes in these central areas of philosophy during the last forty years. Three major, possibly durable contributions in these areas during the period are the criticism of the positivist theory of meaning; the development of a vastly more sophisticated sense of logical form, as applied to natural language; and the fashioning of the non-descriptivist account of reference, with the extension of the line of thought associated with this account into the philosophy of mind. Different philosophers would, of course, provide different lists of achievements, given their own sense of what is true and important.

The dominant currents during the period are more easily agreed upon. The central event is the downfall of positivism and the reopening for discussion of virtually all the traditional problems in philosophy. This event was accompanied by the rediscovery of Frege, the application of logical theory to language, and the rise of the philosophy of language both as a preliminary to reflection on other subjects, and as a more nearly autonomous discipline. The computer paradigm and complex outgrowths of the philosophy of

[67]Descartes's Demon hypothesis is paradigmatically individualistic. But Descartes thought that the hypothesis was incoherent. His causal argument for the existence of the physical world (in Meditation 6) and his principle that the reality of ideas cannot exceed the reality of their objects are anti-individualistic in spirit. The question of whether Descartes was an individualist is very complex and entangled with his views about God. As regards Kant, the Refutation of Idealism (*Critique of Pure Reason*, B 274ff.) contains a fundamentally anti-individualistic strategy. But the overall question of how to interpret Kant with regard to anti-individualism is, again, very complex, since it is bound up with the interpretation of his transcendental idealism.

language have brought the philosophy of mind to dominance in the last decade.

Positivism left behind a strong orientation toward the methods of science. This orientation has fueled the acceptance of materialism in the philosophy of mind and, somewhat belatedly, the development of areas of philosophy (philosophy of physics, mathematics, biology, psychology, linguistics, social science) that take the specifics of scientific theories and practices into account.

For all this, the main direction of philosophy during the period has been toward a broader-based, more eclectic, less ideological approach to philosophical problems—and a greater receptivity to interplay between modern philosophy and the history of philosophy. Philosophy of mind emerged as an area of intense ferment not simply as a product of interaction between philosophy and such disciplines as psychology and linguistics. That ferment also represents a greater interest in traditional questions, questions about what is morally and intellectually distinctive about being human. It is hard to overemphasize the degree to which leading North American philosophers have since the 1950s broadened their sympathies toward traditional questions that still help frame what it is to lead a reflective life.

This broadening seems not to have seriously undermined the standards of rigor, clarity, and openness to communal check bequeathed by such figures as Frege, Russell, Carnap, Hempel, Gödel, Church, and Quine. Partly because of its close connection with the development of mathematical logic in this century, the standards of argument in philosophy have certainly been raised.

A corollary of this change, and of the personal example of the positivists in carrying on open, dispassionate discussion, has been the emergence of philosophical community. One of the glories of English-speaking philosophy in the last forty years has been the fruitful participation of many philosophers in the same discussions. Unlike much traditional philosophy and much philosophy in other parts of the world, English-speaking philosophy has been an open, public forum. The journals of the field, including notably this one, bear witness to a sharing of philosophical concerns, vocabularies, and methods of dispute. We now take this sharing for granted. But in historical perspective, it is remarkable. Although I think that philosophy is not and never will be a science, it has taken on this

much of the spirit of science. That is, to my mind, the more important achievement.

This overview has provided at best a blurred glimpse of the enormous complexity and variety of discussion in philosophy of language and mind during the last four decades. It is deficient as a picture not only in its oversimplifications and limited scope, but also in its failure to convey the life and nature of the animal. Philosophy is not primarily a body of doctrine, a series of conclusions or systems or movements. Philosophy, both as product and as activity, lies in the detailed posing of questions, the clarification of meaning, the development and criticism of argument, the working out of ideas and points of view. It resides in the angles, nuances, styles, struggles, and revisions of individual authors. In an overview of this sort, almost all the real philosophy must be omitted. For those not initiated into these issues, the foregoing is an invitation. For those who are initiated, it is a reminder—a reminder of the grandeur, richness, and intellectual substance of our subject.

University of California, Los Angeles